

"YOUR LIFE WILL NEVER BE THE SAME COMPUTER CLUB"

Vol.1. No.5

Finally the fifth newsletter is out. From the letters we have received, it is quite obvious that most of our clubmembers are hooked on the newsletter (luckily it is legal!). Why only a month after the fourth newsletter was circulated, we were receiving letters demanding to know when the fifth one would be done.

Well here it is, and as you can see it has changed a bit again. There are now 4 pages of consumer programs, a new section called "For Your Information", and the second part of our series on graphics. Have fun reading this issue clubmembers, we will be waiting for your responses.

Editor

SPOTLIGHT ON SOFTWARE

Electronic Files - MA425

Are you tired of searching through drawer after drawer, file after file, many times not finding the information you were looking for?

End those problems with APF's Electronic Files program. With APF's Electronic Files program, finding information is as easy as typing in a file name and seconds later, having the information you have requested appear on the screen in front of you. Save time and aggravation; make your life easier with APF's Electronic Files program.

APFTM
IMAGINATION
MACHINE

APF electronics inc.
1501 Broadway, New York, N.Y. 10036

Bar Charts - MA350

Who has the best way of displaying sales projections, cost analysis, or comparison charts? That's right! APF does and so can you with the APF Color Bar Chart program.

APF's Bar Chart program is designed to display your data in colorful, easy to read chart form. It includes the options of displaying one chart, two charts side by side, or two charts combined. With APF's Colorful Bar Chart program, conducting financial business can be fun.

SPOTLIGHT ON HARDWARE

ATTENTION SMALL BUSINESS PEOPLE!

APF is proud to introduce a new member of its family - The Imagination Machine II (from here on known as IM-2). Now you can perform your business operations in a fraction of the time it once took, have complete organization of accounts, and save money in overhead; all while discovering the world of computers!

Don't worry, a degree in Computer Science is not required. A little common sense and some practice using the machine is all that is necessary.

For those of you technically minded, read over the specifications and take notice of all of the features and hardware that are included for an affordable price of \$1599.95!!

27K RAM (Random Access Memory)

11K Direct Access in Basic Unit
16K Additional Direct Access
(plug-in cartridge form)

ROM (Read Only Memory)

14K Bytes

Keyboard

53-key Stepped Typewriter Style

Connections

Any Standard Color or Monotone or Video Monitor
(optional APF Model TVM-10)

3 Major Screen Display Modes

32 Characters X 16 Lines
Alpha Numeric Mode, which can be intermixed with 64 X 32 (in 8 colors) semigraphics mode.

Object oriented high resolution graphics - 128 user definable objects, giving resolutions of 256 X 192 (in 2 colors) or 128 X 192 (in 8 colors).

Point by point high resolution graphics - 128 X 96 points definable in 4 colors.

Tape Deck

Quality built-in cassette tape deck which uses standard Philips type cassettes, transfers computer programs at 1500 BAUD rate. Audio record/playback capability. Speaker, volume control, microphone jack built-in.

User Programmable

Programmable in "Basic" language.

Programmable in MC6800 language.

Additional Features

R.F. modulator included for connection to T.V.

Disk operation system (DOS) contained in ROM.

Built-in character generator ROM for use with object graphics mode - allows upper/lower case capability.

Building Block - includes FI-100 (mini-floppy disk interface)

Parallel Printer Interface

Dual Floppy Disk Drives

All necessary cables, power supplies, technical and operational manuals.

This system has been designed with all the necessary hardware and it will function with programs in floppy disk or cassette form.

(Please note that almost all of the IM-1's hardware and software is compatible with the IM-2, with the exception of the Backgammon and the Baseball programs).

You get all this hardware for only \$1599.95! It's unbelievable, but it's true. Leave it to APF to make your dreams of owning a computer which satisfies your needs, a little more of a reality.

Level 2 Basic

Now perhaps the excitement of the IM-2 is under control (doubtful), but there is still another reason for your adrenaline to be pumping. The Level 2 Basic is now here!!! (please note: There are two versions of Level 2 Basic; one for the IM-1 and the other for the IM-2. Please specify your machine when ordering Level 2 Basic.) Due to a limited amount of space, we will only do a quick summary of the Level 2 Basic. Further information can be obtained from APF directly.

Features of the Level 2 Basic

Keyboard (Refers to IM-2 only)

Operates in both upper and lower case. Control Key (CTRL) and various other keys enter graphic symbols, Pi (π), superscripts, and more.

System Commands

List - lists your program one line at a time; from one specified line number to another, from one specified line number to the end of the program, or lists complete program.

Delete - operates in the same manner as the list command, except it deletes line statements instead of listing them.

Clear - clears values of variables.

CLS - clears screen and "HOMES" the cursor.

New - clears out all line statements and variables from computer's memory.

Editor

Used for editing stored and currently entered line statements by inserting and deleting characters. Cursor can be moved throughout the line and sent instantly to the beginning of the line.

Math

9 digit floating decimal point with scientific notation.
Standard operators (+, -, /, *, ^)

Variables

Can be numerical or string type and does not require dimensioning.

Tape

CSAVE and CLOAD programs to tape.

Statements

PRINT, STOP, END, CALL, PEEK, POKE, REM, LET, INPUT, DATA, NEW, RESTORE, FOR, NEXT, STEP, TO, GOSUB, RETURN, GOTO, ON, IF ERROR, PRINT@, IF THEN ELSE, PRINT USING, TIME, DEFINE FUNCTION, CONTINUE

Functions

SIN, COS, TAN - Argument in Radians, ARC TAN, LN, EXP, X^Y, SQR, TAB, INT, ABS, RND, SGN, STR\$, VAL, RIGHT\$, LEFT\$, MID\$, A\$+B\$, IN KEY\$, LEN, ASC, CHR\$

Graphics

GR0 Alpha/Semigraphics mode
GR2 Point x Point 128 X 96 resolution in 4 colors (IM-2 only)
GR4 Object Mode - 128 objects (IM-2 only)
GR6 Point x Point 256 X 96 resolution in 2 colors (IM-2 only)

Sound

Sound X,Y Frequency X, Duration Y

This Level 2 Basic is retailing for \$99.95, and comes in cartridge form. A great addition to your Imagination Machines, at an unbeatable price!!!

FOR YOUR INFORMATION

Stand back and make way for our new section, "For Your Information". In this section we will pass on bits of information which we have received from our readers and staff members. We hope that this section proves to be both informative and helpful.

The first bit of information concerns the Newsletter. It has been brought to our attention that many YLWNBS clubmembers expect newsletters monthly. Let it be known that this is not to be expected. To lessen the anxiety of those believing they've missed issues, and to inform still more of you that are uncertain, the newsletter is produced quarterly.

Now that that little item is cleared up we can move on to substitutes for logical "OR" and "AND" functions in IF-THEN statements.

Although the logical "OR" and the logical "AND" functions are not in the "Basic" vocabulary, there is a way to compensate for them. For instance, the "AND" function would be used as follows:

IF A=5 AND B\$= "FRED", THEN....
On the Imagination Machine it is written as:

IF A=5 THEN IF B\$= "FRED" THEN..
Now although a replacement for the "OR" function is not as obvious, there is one and it uses the multiplication property of zero. For example, the "OR" function would be used as follows:

IF A=6 OR B=5 OR C=4 THEN 1000
On the Imagination Machine it is written as:

IF (A-6)*(B-5)*(C-4)=0 THEN 1000
Our thanks to Bruce Chapman for this information.

Now for all you hobbyists: APF is offering a video conversion kit (Model VK1) which will enable you to connect your Imagination Machine to any black and white monitor. To convert your machine requires new connections in the MP1000 section, which can be done by you or APF.

The kit sells for \$15.00 complete with schematics, and may be purchased from APF directly. If you choose to send in your unit to APF for converting, please add \$5.00 for postage and handling.

Another new APF item is a Diagnostics Program. APF now offers a set of diagnostics which will check Graphics, ROM, RAM, KEYBOARD, and TAPE functions. This program is available on cassette tape for \$15.00 and may be obtained from APF directly. (Model #SY-50).

Our final bit of information should interest many clubmembers. In approximately two months, APF will have a complete user written software book available. This book will provide users with an excellent exchange of ideas and programs, ranging from business applications to renumbering of programs. For more information contact the Editor at APF.

That's it for this issue's "For Your Information". If you have any thoughts or ideas which you would like to share with fellow clubmembers, don't hesitate to send them in.

YOU ASKED FOR IT

This issue's "You Asked For It" will undoubtedly bring cheers from many of our clubmembers for the following three reasons: Sound Generation, Chaining Programs, and information on Machine Language. Let the noise begin with Sound Generation!!

A number of requests have been made asking for Call numbers for Sound Generation. Here are five

such Call numbers, along with a program which demonstrates some of the remarkable sounds which can be made with your Imagination Machines.

CALL NUMBERS	PROGRAM
17001	5 DIM A(5)
17005	20 For I=1 TO 5:READ
17007	A(I): NEXT I
17017	30 DATA 17001,17005,
17035	17007,17017,17035
	40 FOR I=1 TO 1000:
	J=INT (6*RND(0))
	55 IF J=0 THEN J=J+2
	60 K=INT (4*RND(0))
	70 FOR L=0 TO K
	80 CALL A(J)
	90 NEXT L
	100 NEXT I

And now for chaining programs! For those of you that have disk systems, you are aware that the Disk Operating System allows "chaining" of programs. Many of you have made attempts at chaining programs and were not successful. Rest assured that the following information will produce successful results.

Chain disk programs, or in other words, have a program residing in the computer's memory, load another program from the diskette and automatically have it run. The command structure is simply to have a program statement which says: RUN "FILE NAME". When that statement is executed, "FILE NAME" is loaded from diskette and automatically started.

Now before you run off and try to chain programs, there is a slight problem which must be corrected. Pointers which tell "BASIC" where to dimension variables are not initialized correctly when a program is chained in. A very simple solution is as follows. The first line statement of each program being chained must be: POKE 41009,PEEK (41984): POKE 41010, PEEK (41985). With this as your first line statement in programs being chained, you should have no problems at all.

On to the information concerning machine language. It's good to know that many of our "BASIC" programmers


```

40 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
    0,0,0:REM SHAPE#1
50 FOR I=512 TO 543
60 READ A:POKE I,A
70 NEXT I
80 REM LINES 90-160 SETUP SCREEN
    MAP WITH ALTERNATE ROWS HAVING
    SHAPE 0 AND SHAPE 1
90 DATA 0,32,1,32,0,32,1,32,0,32,
    1,32,0,32,1,32,0,32,1,32,
    0,32,1,32,999,999
100 X=0
110 READ A,B:IF A=999 THEN 170
120 FOR J=1 TO B
130 POKE X,A
140 X=X+1
150 NEXT J
160 GOTO 110
170 REM SCREEN IS SET UP, WAIT FOR
    KEY TO BE PRESSED BEFORE RETURN
    ING TO REGULAR MODE
180 IF KEY$(0)="" THEN 180
190 POKE 8194,60:STOP

```

You should not have had any trouble with the above, but if you did recheck your program carefully and reread both graphic writeups. The shapes you define of course can be more complex and you can mix the four colors on a line. In the next issue we will discuss the alternate color sets (what more colors???) and vertical motion of objects.

NEW SOFTWARE

General Ledger - BP-50
 Requires: IM-1 or IM-2
 BB-2
 Dual Disk Drives
 R8K Memory Module-R16K for IM-2
 80 Column Printer (appropriate cable and interface)

APF's General Ledger program gives you all the necessary tools for maintaining an accurate and complete general ledger. It will produce all the standard financial statements, access all account and posting information, and several additional reporting functions. This program will maintain 2034 posting entries per disk, and will verify all entries to avoid processing postings which are out of balance. Seven accounts may be entered

within each entry, reference numbers are automatically assigned, and a description for the entry is an optional data entry. There is also a balance forwarding function which provides standard monthly closing procedures, plus reversal processing and year-end closing entries. This program retails for \$199.95, and may be purchased from APF directly.

Compu-Calc - BP-60
 Requires:IM-2
 BB2
 R16K Memory Module
 Dual Disk Drives
 80 Column Printer (appropriate cable and interface)

Compu-Calc is a program which combines the functions of a calculator, paper and pencil, with a computer's memory and speed. This program is essential for people that deal with numbers. This includes people who plan budgets, compare actual results to budgeted forecasts compute financial ratios and tax consequences, commission rates, sales costs, advertising expenditures, etc. Compu-Calc's complete with features such as: Fix-point arithmetic, printouts for discussion and documentation, and most importantly, on the screen viewing of all calculations and comparisons. This program retails for \$129.95 and can be obtained directly from APF.

LETTERS TO THE EDITOR

Once again we get the chance to show you the wonderful letters we receive from our clubmembers. These letters are our proof that the APF Computer Club is a true success!!

I will be attending school next year at St. Paul's in Concord, New Hampshire. Throughout the year I will be able to take short trips to nearby cities such as N.Y. On one of these occasions I would like to arrange to visit you if it's convenient.
 Larry Drebes

We have received a number of similar requests and we are more than

happy to meet with our clubmembers. If you would like to visit with us, contact the Editor so that a convenient time may be arranged.

I was very pleased to receive the Computer Club Newsletter, especially as I live as far away as Australia. Your letter and the newsletters that I have received have certainly served to reduce the sense of "computer isolation" that I feel here. The backup shown by the company through this club is tremendous!

David Powell

If a registration card is sent in you immediately become a member of our club, no matter where you live!

I have owned the IM-1 for approx. one year and a few people I know have had one for awhile. We have gotten together a club, Compu-Swap, for users of the APF Imagination Machine. We would like our club to grow and hopefully you can help us. I would appreciate it if you could put the following announcement in your next newsletter. Thank you very much.

Bill Vackner

The following is a copy of the announcement Bill Vackner sent in to APF.

COMPU-SWAP PO BOX 1371, WEST
CALDWELL, NJ 07006

COMPU-SWAP is a group of users, who for the past 6 months have operated an APF Imagination Machine Club for the purpose of exchanging programs and general information about our computers. COMPU-SWAP would like to extend an invitation to other APF owners to join our club. Anyone interested should send a SASE to the above address.

That's it for now clubmembers. Once again, thanks for your involvement and support.

BUGS

Oh those nasty bugs are back again. But never fear, there is a solution for all of them. The first set of bugs are merely typographical errors our clubmembers have discovered. For instance:

Basic Tutor corrections

Page 160

4th para. delete five rows,
insert six rows

5th para. delete (5x8)
insert (6x9)
delete 40
insert 54

7th para. after DIM B\$ (4,12)
delete four words
insert five words

insert sentence: with letter arrays, the second number exactly equals the memory space required.

Page 29- The very last item, A3\$ is not incorrect as suggested. It should read 3A\$.

Page 36- Line 70-The monitoring program will not accept the space between 0=NO, and 1=YES. Therefore delete the space.

Page 116- Line 50-There should be 8 spaces between interest and total, not one as shown.

Page 228 under D-DATA-delete the quotation marks around data items.

Thank you David Powell for the Basic Tutor corrections.

Fourth YLWNBS Newsletter Corrections
In section B in the High Resolution Graphics write-up, remove one zero from line 60.

In the D section, insert the following: 130 GOTO 90.

The final bug in the 5th newsletter is in the bug section. Stop laughing and insert in number six; press the CL key and then the Break key.

Now for the serious bugs:

RND-We have discovered a possible condition which occurs in powering up, which always makes the RND (0) function produce a result of zero. Since each time you power up this

condition may or may not occur, the best solution is to place the following statement in any program which uses the RND function: POKE 40994,27. This statement will alleviate your problems.

Disk-There is a problem which occurs when you're trying to delete disk files that were named by a string variable value. Ex. DIM A\$(7)="TEST":OPEN 0 A\$.

Now if you try to delete "TEST" by typing SAVE"TEST"K, the error message, "A FILE NOT FOUND" will occur. The reason for this is that on the diskette directory the file named "TEST" is actually seven characters. (TEST being the first four and the last three are ASCII code 0). The solution for this problem is to type: SAVE"TEST CTRLA CTRLA CTRLA CTRLA"K. (For CTRL. press the control key and the "A" key simultaneously, leaving out all of the spaces in between the words.) By typing in the above you add three zeros to the name "TEST", thus eliminating your problem.

The final bug was sent in by David Powell one of our Australian clubmembers! David has a knack for discovering bugs and we are certainly thankful to him for the following: Spelling Duel: If at the end of a game the operator selects new game/new players, then the old player(s) name(s) and score(s) are not cleared. The fix for this:

```
OPOKE 40994,27
1POKE 24578,38
2010DIM SC (3,6),NM$(4,10)
2140FOR P=1 TO NP:NM$(P-1,0)="TEN
  SPACES":FOR Z=0 TO 6:SC(P-1,0)
    =0:NEXT
2160INPUT NM$(P-1,0):IF ASC(NM$(P-
  1,0))=32 MUSIC"/1":GOTO 2150
2170MUSIC "7":NEXT:NG=1
```

That's all of the bugs we are aware of. If you have discovered any other bugs, be a loyal club-member and let the rest of us know about it.

SUBMITTED CLUBMEMBER PROGRAMS

This first program is a simulation of a moon landing sent in to us by Bruce Neustater of Morganville N.J. The object of game is to land the spaceship on the landing pad without crashing. Try it, but believe me it is not easy!

```
1 CALL 17046: DIM A$(1): POKE 24578,38: GOTO 6
2 PRINT "ENTER RANK:" PRINT "1=PRIVATE": PRINT "2=MAJOR": PRINT "3=GENERAL": M
USIC "1": PRINT
3 AS=KEY$(2): IF AS="" THEN 3
4 MUSIC "-4":R=A$R/R/100000000
5 RETURN
6 CALL 17026
7 GOTO 9
8 A=L*32+P*512: POKE 40960,A/256: POKE 40961,A-INT(A/256)*256: RETURN
9 CALL 17046
10 COLOR=0: SHAPE=15: FOR U3=0 TO 15: HLIN 0,31,U3: NEXT U3
20 DIM A$(1)
30 GOSUB 8
31 POKE 8193,60
35 PRINT "    <<<< MOON LANDER >>>>": PRINT: PRINT "  ^THRUST      >=RIGHT TH
RUST      <=LEFT THRUST": PRINT
38 PRINT: PRINT
40 COLOR=4: HLIN 15,20,12
45 COLOR=3: PLOT 17,5: PLOT 16,6: PLOT 18,6: FOR Z=0 TO 250: NEXT Z: COLOR=0:
PLOT 17,5: PLOT 16,6: PLOT 18,6
46 COLOR=3: PLOT 17,7: PLOT 16,8: PLOT 18,8: FOR Z=0 TO 250: NEXT Z: COLOR=0:
PLOT 17,7: PLOT 16,8: PLOT 18,8
47 COLOR=3: PLOT 17,10: PLOT 16,11: PLOT 18,11
50 PRINT "HIT ANY KEY TO START"
60 FOR Z=1 TO 150: IF KEY$(2)<>" " THEN 100
70 NEXT Z
75 MUSIC "3"
80 GOTO 60
100 CALL 17046: GOSUB 2
101 FOR U3=1 TO 32: PRINT: NEXT: CALL 17026
110 SHAPE=15
120 COLOR=0: HLIN 0,31,15
130 COLOR=4: SHAPE=4: PLOT 2,4: PLOT 7,11: PLOT 16,6
131 PLOT 28,9
135 SHAPE=15
140 D=INT(50/R):X1=17:Y=31:X=4:HS=.2*R:VS=.2*R
145 Y=14
150 COLOR=4: HLIN X1,X1+3,Y1
200 GOSUB 8
205 PRINT "V.SPEED=": IF VS<0 THEN PRINT "^^"
206 IF VS=0 THEN PRINT "^^"
207 PRINT "  ABS ( INT (VS*100) )": H.SPEED=": IF HS>0 THEN PRINT "  >"
211 IF HS<0 THEN PRINT "  <-"
212 PRINT INT(ABS(HS*100))
215 PRINT "  FUEL=": IF 0<20 THEN POKE 544,76: POKE 545,79: POKE 546,
87: POKE 547,96: POKE 548,97
216 IF 0<20 THEN MUSIC "/-10"
217 PRINT
218 IF E=1 THEN 3000
270 AS=KEY$(2): IF AS="S" THEN VS=VS-.71: CALL 17006
271 IF Y>10 THEN IF AS="S" THEN VS=VS+.22
275 IF AS="E" THEN HS=HS+.45
280 IF AS="E" THEN HS=HS+.5
290 R1=RND(0): IF R1>.4 THEN R1=R1/2
295 IF VS*100<50 THEN R1=R1/2
300 IF AS="" THEN VS=VS+R1
305 IF AS="" THEN HS=HS+.15
307 IF AS">"S" THEN IF AS"<" " THEN VS=VS+R1
310 D=0: IF 0<0 THEN 8000
314 Q1=X1:Y1=Y
315 X=INT(X1):Y=INT(Y1)
320 K=Y*32+X*512: POKE 40960,K/256: POKE 40961,K-INT(K/256)*256
321 PRINT "1: PRINT "
322 K=Q1:Y=C1
330 COLOR=4: SHAPE=4: PLOT 2,4: PLOT 7,11: PLOT 16,6
331 PLOT 28,9
341 IF Y>12 THEN 343
342 GOTO 370
343 COLOR=4: SHAPE=15
344 HLIN 17,20,14
370 X=X+HS:Y=Y+VS
371 IF X>29 THEN X=29
375 IF X<2 THEN X=2
380 IF Y<2 THEN Y=2
381 IF Y>12 THEN IF X<X1+4 THEN IF X-1>X1 THEN Y=12
385 IF Y>14 THEN Y=14
390 COLOR=3: SHAPE=15: PLOT X,Y: SHAPE=6: PLOT X-1,Y+1: SHAPE=9: PLOT X+1,Y
+1
500 IF Y>12 THEN IF X<X1+4 THEN IF X-1>X1 THEN 2500
600 IF Y>13 THEN IF X<X1+4 THEN 1000
605 IF Y>13 THEN IF X<X1-1 THEN 1000
606 IF Y>13 THEN 1000
700 GOTO 200
1000 COLOR=3: PLOT X,Y: PLOT X+1,Y: PLOT X-1,Y: PLOT X,Y+1: MUSIC "/1/1/144"
1010 MUSIC "/-100000000000000"
2000 MUSIC "1112/1/1/1/1/00000": PRINT "THE LANDER HAS CRASHED!!!": PRINT "YOU H
AVE DESTROYED A"
2010 PRINT "6626,718,915,621.00 LANDER!!!": GOTO 9900
2500 E=1: GOTO 200
3000 MUSIC "11111666*54": PRINT "YOU HAVE LANDED!!!"
3005 E=0
3010 IF VS*100>120 THEN PRINT "BUT!!!!...YOU MADE A "1 RND(0)*10001" FT. CRATE
R!!!!": PRINT "EVERYONE IS DEAD!!!": GOTO 9000
3020 IF VS*100>90 THEN PRINT "... MASSIVE DESTRUCTION HAS": PRINT "OCCURRED!!
YOU ARE STRANDED ON THE MOON!"
3030 IF VS*100>90 THEN GOTO 9000
3040 IF VS*100<20 THEN 4000
3050 PRINT "... ROUGH LANDING.. BUT EVERYONE IS O.K.!"
3060 MUSIC "3": PRINT "DAMAGE TO THE MAIN ROCKET IS      HEAVY!!!"
3070 PRINT "...ESTIMATED REPAIR TIME IS      "1 INT( RND(0)*100) " DAYS"
3080 GOTO 9000
4000 PRINT "HOW!!! WHAT A LANDING!!!: PRINT "EVERYONE IS FINE...."
4010 PRINT "DAMAGE TO THE SHIP IS MINIMAL!"
4020 PRINT "GREAT JOB CAPTAIN!!!: GOTO 9000
7999 STOP
```


The next program was sent in by our very active clubmember, Bruce Chapman. The object of the game is to score the highest amount of points by hitting the enemy starship and the clumsy red alien. While trying to get these ships be alert so that the alien doesn't trample you. You will need to play this game awhile before you really get the hang of it. Good Luck!

Dan Wilson of Bloomfield IN. sent us this Maxwells Demons program. It is a bit simple but it is still fun to play. The object of this game is to trap molecules coming from the left side, on the right side of the grid. Have fun folks!

One thing that is helpful to Roland DeGraff of Holland MI, is to know how much memory a certain program resides in. The following program can be used to find out how much memory is used.


```

9994 DIM A$(1)
9995 FOR X=41988 TO 49151
9996 PRINT X, CHR$ ( PEEK (X))
9997 A$= KEY$ (0): IF A$="" THEN 9997
9998 NEXT X
9999 END

```

Since RAM starts out at 41988 this is where the beginning of every Basic program starts. Now, as long as you hold down the space bar or any key on the keyboard, the computer will keep printing out information in the following format: memory location----character in memory location. When you reach the last statement in the last line of your program, you simply subtract that memory location from 41988 and that will be the number of bytes that the program resides in.

On to an Auto Race program by Brett Neustater. The left joystick is used to keep the car (white) on the track (green). The game keeps track of crashes during the allotted time period. Go to it members!

```

10 REM ...AUTO RACE...
20 DIM A$(1):X=15: FOR Q=1 TO 32: PRINT : NEXT
30 INPUT "ENTER SKILL (1=EASY 2=HARD)":V:A=13:Y=3
40 SHAPE =15: COLOR =0: FOR E=0 TO 15: HLIN 0,31,E: NEXT
50 FOR K=1 TO 200:A$= KEY$ (2)
60 IF A$="W" THEN X=X-1
70 IF A$="E" THEN X=X+1
80 COLOR =4: PLOT X,Y: IF PEEK (512+(Y+1)*32+X)<>143 THEN 160
90 COLOR =7:U= INT ( RND (0)*3)+1: ON U GOTO 100,110,120
100 A=A+V: GOTO 120
110 A=A-V
120 IF A<1 THEN A=1
130 IF A>23 THEN A=23
140 HLIN 0,A,15: HLIN A+6,31,15: COLOR =0: HLIN A+1,A+5,15
150 PLOT X,Y: PRINT : NEXT : GOTO 170
160 CALL 17026: COLOR =7: PLOT X,Y:C=C+1: NEXT
170 PRINT "YOU CRASHED":C:"TIMES": CALL 17026
180 END

```

This next program was sent to us by Thomas Conkey of League City, TX. The program fills the screen with eight different colored stripes and can be used as a guide in getting the correct hues on your television. Thanks Thomas, for such a useful program.

```

5 CALL 17046: POKE E24578,38
10 SHAPE =15
15 X=0
20 I=0
25 COLOR =I
30 VLIN 0,15,X
35 IF X>3 THEN 45
40 GOTO 120
45 IF X>7 THEN 55
50 GOTO 120
55 IF X>11 THEN 65
60 GOTO 120
65 IF X>15 THEN 75
70 GOTO 120
75 IF X>19 THEN 85
80 GOTO 120
85 IF X>23 THEN 95
90 GOTO 120
95 IF X>27 THEN 105
100 GOTO 120
105 IF X>31 THEN 160
120 Y=Y+1
125 IF Y=4 THEN 135
130 GOTO 145
135 Y=0
140 I=I+1
145 IF I>7 THEN 160
150 X=X+1
155 GOTO 25
160 GOTO 160

```

Ah, a program for lovers, or at least one that is useful for Valentines Day. All you romantics can thank Dan Nelson of Long Beach CA for this valentine producing program.

```

10 PRINT TAB (10):"*****": SPC (8):"*****"
20 PRINT TAB (8):"*****": SPC (4):"*****"
30 PRINT TAB (7):"*****": SPC (2):"*****"
40 PRINT TAB (6):"*****": SPC (1):"*****"
50 PRINT TAB (5):"*****": SPC (0):"*****"
60 PRINT TAB (5):"*****": SPC (8):"HAPPY": SPC (8):"*****"
70 PRINT TAB (5):"*****": SPC (5):"VALENTINE'S": SPC (5):"*****"
80 PRINT TAB (5):"*****": SPC (9):"DAY": SPC (9):"*****"
100 PRINT TAB (5):"*****": SPC (19):"*****"
110 PRINT TAB (7):"*****": SPC (17):"*****"
120 PRINT TAB (8):"*****": SPC (15):"*****"
130 PRINT TAB (9):"*****": SPC (11):"*****"
140 PRINT TAB (11):"*****": SPC (7):"*****"
150 PRINT TAB (13):"*****": SPC (3):"*****"
160 PRINT TAB (15):"*****"
170 PRINT TAB (17):"*****"
180 PRINT TAB (18):"*****"
190 GOTO 190

```


Have you ever felt as though you were being ripped off by your Gas or Electric company? From now on you can make sure that you're not; by figuring out your bill ahead of time with Peter Moranski's Electric and Gas Rates program. Nice going Peter!

```

5 GOSUB 1000
10 PRINT "ELECTRIC AND GAS RATE CALCULATOR": PRINT : PRINT
20 PRINT "IF YOU KNOW YOUR ELECTRIC AND GAS RATES TYPE 1 AND THEN RETURN, IF NO
  T JUST TYPE RETURN": PRINT
30 INPUT "TYPE":A: PRINT
40 IF A=1 GOTO 240
50 GOSUB 1000
60 INPUT "PREVIOUS GAS AMOUNT $":A: PRINT
70 INPUT "PREVIOUS ELECTRIC AMOUNT $":B: PRINT
80 INPUT "GAS UNITS USED":C: PRINT
90 INPUT "KILOWATT HOURS USED":D: PRINT
100 G=A/C:E=B/D
110 GOSUB 1000
120 INPUT "PREVIOUS GAS METER READING":A: PRINT
130 INPUT "PREVIOUS ELECTRIC METER READING":B: PRINT
140 INPUT "PRESENT GAS METER READING":C: PRINT
150 INPUT "PRESENT ELECTRIC METER READING":D: PRINT
160 M=C-A:N=D-B
170 X=M*G:Y=N*E
180 GOSUB 1000
190 PRINT "YOUR GAS BILL IS $":X: PRINT
200 PRINT "YOUR ELECTRIC BILL IS $":Y: PRINT
210 PRINT "YOUR TOTAL BILL IS $":X+Y: PRINT
220 IF X+Y<250 THEN PRINT "WOW----"
230 END
240 INPUT "GAS---COST PER UNIT":G
250 INPUT "ELECTRIC---COST PER KILOWATT HOUR":E
260 GOTO 110
1000 CALL 17046
1010 FOR L=1 TO 32: PRINT : NEXT L
1020 POKE 40960,21: POKE 40961,0
1030 PRINT : PRINT : RETURN

```

The next two programs will probably be quite useful to many of you clubmembers. The first program was sent in by Alan Nakamoto of Richmond B.C. and it deals with square roots.

```

10 PRINT "FINDING SQUARE ROOTS"
20 PRINT
30 INPUT "NUMBER TO BE ROOTED",X
40 N=1:B=X:C=10
50 IF X>1000010000 THEN LET C=12
60 IF X>10000010000 THEN LET C=15
70 IF X>40000004000000 THEN LET C=20
80 FOR A=1 TO C
90 B=(B+N)/2
100 N=X/B
110 NEXT A
120 PRINT
130 PRINT "THE SQUARE ROOT OF":X
140 PRINT "IS":B
143 PRINT B*B
145 GOTO 10
150 END

```

The second and final program for this issue was sent in by Norm Huff-nayle of Wichita, KS. Norm's program converts hexadecimal numbers to decimal. (This program will be of great help to you when you're working with graphics.)

```

10 PRINT "THIS PROGRAM CONVERTS"
20 PRINT "HEXIDECEMAL NUMBERS TO DECIMAL"
30 PRINT "AND ALSO DOES THE REVERSE.": PRINT : PRINT
40 DIM N$(5),A$(3),B$(5),Z$(3),D$(1),C$(1)
50 PRINT "CONVERT TO HEX(H)"
60 INPUT "OR DECIMAL(D)":D$: IF D$="D" THEN 170
70 DATA 4096,256,16,1
80 PRINT : PRINT "DECIMAL CONVERSION (9999 STOP)": PRINT
90 RESTORE : INPUT "DECIMAL NUMBER":N:Z1=N
100 IF N>9999 THEN 250
110 B$=N$:B$=" ":J=4
120 READ P:X=INT(N/P): IF X>9 THEN 140
130 Y=X*48: GOTO 150
140 Y=X*55
150 C$=CHR$(Y):B$(LEN(B$))=C$:N=N-(P*X):J=J-1: IF J>0 THEN 120
160 PRINT "DECIMAL "Z1:" IS "B$: HEX": GOTO 90
170 PRINT : PRINT "HEX CONVERSION ("END" STOP)":J=0: PRINT
175 A$=N$
180 INPUT "HEX NUMBER":A$: IF A$="END" THEN 250
190 C$=N$:C$=A$(J):Y=ASC(C$): IF Y/64 THEN 210
200 Z(J)=Y-48: GOTO 220
210 Z(J)=Y-55
220 J=J+1: IF J<4 THEN 190
230 D=4096*Z(1)+256*Z(2)+16*Z(3)+Z(4)
240 PRINT "HEX "A$:" IS "D:" DECIMAL": GOTO 170
250 END

```

Well clubmembers, Norm's program wraps up this issue of the newsletter. Please don't be discouraged if your program wasn't used in this issue. So many programs are sent in, and there are so few pages to work with. Keep in mind that if we have exchanged APF software for your program, that eventually your program will be used.

Hope you enjoy this issue clubmembers; till the next issue

Editor

****NEW****

HARDWARE

IM-2 - IMAGINATION MACHINE \$1599.95
AL-200 - LEVEL 2 BASIC - IM-1 99.95
AL-300 - LEVEL 2 BASIC - IM-2
VK-1 - VIDEO CONVERSION KIT 15.00

SOFTWARE

BP-50 - GENERAL LEDGER 199.95
BP-60 - COMPU-CALC (IM-2) 129.95
SY-50 - DIAGNOSTICS 15.00

WHAT'S AVAILABLE IN SOFTWARE

SYSTEMS PROGRAMS

SY-20 - ASSEMBLER EDITOR 59.95
(disk only)
SY-30 - BACKUP (disk only) 9.95
SY-40 - DISASSEMBLER (disk) 7.95

DISK OPERATED PROGRAMS

BP-30 - ACCOUNTS RECEIVABLE 199.95
BP-40 - MAILING LIST 29.95

COMPUTER CASSETTE PROGRAMS
(Education/Entertainment)

MA-125 - MUSIC COMPOSER/PLAYER
PIANO 9.95
MA-150 - TYPING TUTOR 29.95
MA-200 - MATH TUTOR 29.95
MA-225 - PERCEPTION I 14.95
MA-325 - ARTIST and EASEL 9.95
MA-375 - THE WORD FACTORY 14.95
MA-400 - SPELLING DUEL 14.95
MA-475 - BILLBOARD/MESSAGE
CENTER 19.95
MA-500 - BASIC TUTOR 49.95
MA-550 - JUMBLED UP THINGS 29.95
MA-575 - SPACE DESTROYERS 19.95

(Business/Personal Management)

MA-175 - CHECKBOOK/BUDGET
MANAGER 29.95
MA-250 - SPACE, SIZE and SUR-
FACE GUIDE 29.95

*Cannot be used on IM-2

MA-275 - PERSONAL BUSINESS
MACHINE 29.95
MA-300 - BUDGET MANAGER II 19.95
MA-350 - BAR CHARTS 19.95
MA-425 - ELECTRONIC FILES 29.95

COMPUTER GAME CARTRIDGES

MG-1001 - CATENA 14.95
MG-1003 - HANGMAN/TIC TAC TOE/
DOODLE 9.95
MG-1004 - BOWLING/MICRO MATCH 19.95
MG-1005 - BRICKDOWN/SHOOTING
GALLERY 9.95
MG-1006 - BASEBALL* 14.95
MG-1007 - BLACKJACK 9.95
MG-1008 - BACKGAMMON* 19.95
MG-1009 - CASINO I/ROULETTE/
KENO/SLOTS 19.95
MG-1010 - UFO/SEA MONSTERS/
BREAK IT DOWN/REBUILD/
SHOOT 19.95
MG-1011 - PINBALL/DUNGEON HUNT/
BLOCKOUT 19.95
MG-1012 - BOXING 14.95
MG-1013 - SPACE DESTROYERS 39.95

WHAT'S AVAILABLE IN HARDWARE

D-100-0 MINI FLOPPY DISK
DRIVE 399.95
D-100-1 2nd MINI FLOPPY DISK
DRIVE 399.95
D-100-A DUAL MINI FLOPPY DISK
DRIVES 799.90
R-8K - 8K RAM MEMORY CARTRIDGE
(IM-1 ONLY) 79.95
R-16K - 16K RAM MEMORY CART-
RIDGE (IM-2 ONLY) 99.95
WW-100 - WIRE WRAP BOARD 34.95
BB-1 - BUILDING BLOCK/SI232 159.95
BB-2 - BUILDING BLOCK/FI100 159.95
PI-100 - PARALLEL INTERFACE
CARTRIDGE 99.95
SI-232 - SERIAL INTERFACE CART-
RIDGE 99.95
FI-100-A - MINI FLOPPY DISK
INTERFACE 99.95
TVM-10 - VIDEO MONITOR 149.95

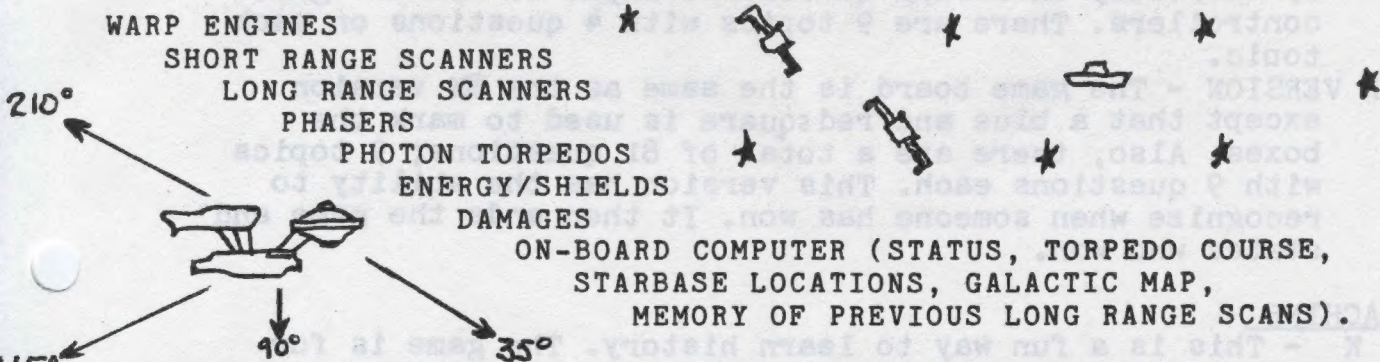
WHAT'S AVAILABLE IN DOCUMENTATION

TRM - TECHNICAL REFERENCE MANUAL N/C
LBL-1 - LISTINGS, I/O ROUTINES,
DOS 14.95
LBL-2 - LISTINGS, BASIC INTER
PRETER 19.95
SM-1 - IM-1 SERVICE MANUAL 14.95

STAR TREX ***

THE ULTIMATE STRATEGIC SPACE BATTLE!

SEEK OUT AND DESTROY THE FLEET OF KLINGON WARSHIPS WHICH THREATEN THE GALAXY IN A RACE AGAINST "TIME", AS YOU COMMAND YOUR STARSHIPS:

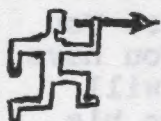


SHORT RANGE SCAN GIVES SEMI-GRAPHICS DISPLAY OF YOUR STARSHIP'S LOCATION AND ALL STARS, KLINGONS AND STARBASES WITHIN YOUR PRESENT QUADRANT. STAR TREX IS NOT AN "ARCADE" GAME, RATHER AN EXCITING GAME OF SKILL AND STRATEGY. REMEMBER TO KEEP YOUR SHIELDS UP, AS THE KLINGONS' PHASERS CAN DAMAGE ANY PART OF YOUR STARSHIP WITH SURPRISING SPECIAL EFFECTS!

STAR TREX INTRO PROGRAM AND GAME PROGRAM 8K \$12.95

♠ @! CONCENTRATION ? ★ ♠

NO MORE LOST OR BENT CARDS! LET YOUR IMAGINATION MACHINE SHUFFLE AND DEAL OUT THE 52 CARD DECK AS YOU AND YOUR OPPONENT USE THE JOYSTICK/CONTROLLERS TO TRY AND SELECT PAIRS. LEFT AND RIGHT SCORES ARE ALSO DISPLAYED ON THE SCREEN IN THIS HI-RES GAME.



HEAD-HUNTER

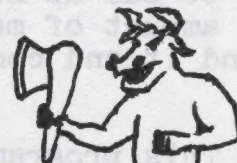


YOUR COMPUTER KEEPS SCORE AS 2 PLAYERS USE THE JOYSTICK/CONTROLLERS TO EVADE, PURSUE AND SHOOT THE HEADS IN THIS FAST-ACTION, HI-RES GAME. WATCH OUT, THERE'S ONE BEHIND YOU!

CONCENTRATION AND HEAD-HUNTER (BOTH) 8K \$ 9.95



MINOTAUR



ENTER THE MINOTAUR'S CASTLE, DESTROY IT AND CLAIM IT'S TREASURES IN THIS ADVENTURE GAME. (NO GRAPHICS).

MINOTAUR 8K FREE WITH PURCHASE OF BOTH TAPES!

IMAGINATION MACHINE PROGRAMS ABOVE MAY BE PURCHASED FROM:

G. R. JONES
419 S. 105 E. PL.
TULSA, OKLAHOMA 74128

ON CASSETTE w/BOX

ALL 4 FOR \$22.95

MONEY ORDERS (OR CHECKS) ONLY, PLEASE.

PROGRAMS FOR FUN AND LEARNING

Program
Numbers FOR APP COMPUTERS

TIC TAC KNOW

#101 8 K VERSION - Two players take turns trying to claim the boxes on a tic-tac-toe game board. The boxes are won by correctly answering questions. Input is via the game controllers. There are 9 topics with 4 questions on each topic.
\$8.00

#102 16 K VERSION - The game board is the same as the 8K version except that a blue and red square is used to mark the boxes. Also, there are a total of 81 questions; 9 topics with 9 questions each. This version has the ability to recognize when someone has won. It then ends the game and states who won.
\$12.00

TIME MACHINE

#103 16 K - This is a fun way to learn history. The game is for 2,3 or 4 players. At the onset of the game you enter the number of rounds to be played and the level of difficulty for each player. You also decide whether or not to have the correct answer shown. Computer keeps score and keeps track of the turns. Players use game controllers.
\$12.00

MATH TIME

#104 8 K - Ever have trouble reading numbers on the screen ??? Well, all of the numbers in this program are in large, colorful graphics. With this program you can practice addition, subtraction, multiplication, division, times tables, and a mixture of operations. The computer keeps track of your score and amount of time needed. Try to increase your speed and accuracy.
\$8.00

STAR BATTLE

#105 8 K - One player at the keyboard. Sorry, no graphics. You have to find and destroy the enemy space ship. You have a limited amount of fuel. Be careful, the enemy will occasionally shoot at you and he may also change his position.
\$5.00

MONEY

#106 8 K - This program is designed to help children to learn how to add up money and make change. The child is told the amount of money he has and then is given the chance to spend it and compute his change.
\$5.00

SYMBOLS

#107 8 K - This program is for anyone interested in science or planning a career in science. The program will help a person to learn the symbols and names of 25 common chemical elements. Symbols are displayed as large, colorful low-resolution characters.
\$8.00

#108 CODE PRACTICE 8 K - Learn and practice morse code. Allows you to practice random letters or groups of letters. Good for those interested in radio electronics.
\$8.00

TO ORDER ONE OR MORE PROGRAMS SEND A CHECK OR MONEY ORDER FOR THE APPROPRIATE AMOUNT ALONG WITH THE PROGRAM NUMBER(S) TO
Richard Carman, 7 Roda Dr. , Mastic, N.Y. 11950
MAKE CHECKS AND MONEY ORDERS PAYABLE TO Richard Carman.

PROFESSIONALLY CREATED PROGRAMS FOR THE APF IMAGINATION MACHINE

EXECUTIVE SOFTWARE AVAILABLE:

CONTROLLED LIST. Scroll back and forth through a BASIC program using the joystick. Make changes and resume scrolling. An ideal tool for debugging or modifying a program.

RENUMBER. Renumber an APF BASIC program, leaving 5 line intervals between statements to allow for modifications. NO IN-LINE CODE ALLOWED.

GRAPHICS HELPER. HI-RES programmers can now create shapes using the joystick. This program creates the codes necessary to build the design, displays it and allows modifications to any created shapes. The menu allows the programmer to list the codes generated for each shape in HEX and DEC and to display any designs on the screen.

BUT THE BEST PART is that it provides for the shapes created to be used in another BASIC program as a REMARK statement.

A CALL routine is provided which relocates the shape table.

The only coding needed to put HI-RES shapes on the screen is POKE Address, Shape. A MUST FOR THE SERIOUS HI-RES PROGRAMMER!

DISK-TO-TAPE BACKUP/RESTORE. Backup disks to tape and restore tape to disk. Eliminate the need for 2 disk units or a lot of manual switching of disks. Once started NO OPERATOR INTERVENTION is required. Start the program and take a break! LET THE COMPUTER DO THE WORK.

GAMES FOR THE APF:

APF-MAN. FINALLY an APF version of this most popular arcade game is available! The little muncher scurries around the screen trying to gobble up as many points as he can while being pursued by some very intelligent robots. Each new screen becomes more challenging as the robots pick up speed. A VERY GOOD HI-RES SIMULATION OF THE ARCADE GAME, complete with bonus points and energizers. The most REALISTIC game for the APF since SPACE INVADERS!

TREASURE HUNT. Accumulate as much treasure as possible as quickly as you can by maneuvering around the board with the joystick. Two players may pit their skills against each other or take on the computer in one of five skill levels. Each game is different so strategy is a must.

JIGSAW PUZZLES. Program builds jigsaw puzzles to be solved in as few moves as possible. Every puzzle is different. It's not as simple as you might think.

ART THIEF. A valuable painting has been stolen and you must determine who stole it and when. Question the suspects and deduce the solution. Be careful though because some people are forgetful and the thief, of course, might lie. LO-RES graphics game with 5 skill levels.

GRAPHICS HELPER \$ 15
RENUMBER 8
CONTROLLED LIST 8
TAPE/DISK BACKUP 8
SOFTWARE PACK 35
{INCLUDES ALL OF ABOVE}

APF-MAN \$ 20
TREASURE HUNT 8
JIGSAW PUZZLES 8
ART THIEF 8
GAME PACK 40
{INCLUDES ALL OF ABOVE}

SEND CHECK/MONEY ORDER TO: CARL A. ECHOLS
112 CREEKSIDE LANE
NOBLESVILLE, IN 46060

NAME-----
STREET-----
CITY----- STATE----- ZIP-----